AMENDMENTS TO THE SPECIFICATION:

Please replace the Abstract with the following:

A~~A~~n inter-symbol-interference (ISI) coder with mapper and linear filter and a technique of channel encoding deliberately inserts inter-symbol-interference (ISI) into the signal using a non-linear precoder to map ~~data into a lattice that can have a much better distance spectrum than an uncoded QAM signal, although it has nearly the same power level by~~ map input symbol sequences into sequences of extended symbols. Coded output symbols are generated in response to sequences of extended symbols which are selected from the same grid associated with the input symbols to yield a same minimum distance.